



Instantiation of IETF Network Slices in service providers networks

draft-barguil-teas-network-slices-instantation-05

S. Barguil, L.M. Contreras, O. Gonzalez de Dios (*Telefonica*)

V. Lopez (*Nokia*), R. Rokui (*Ciena*)

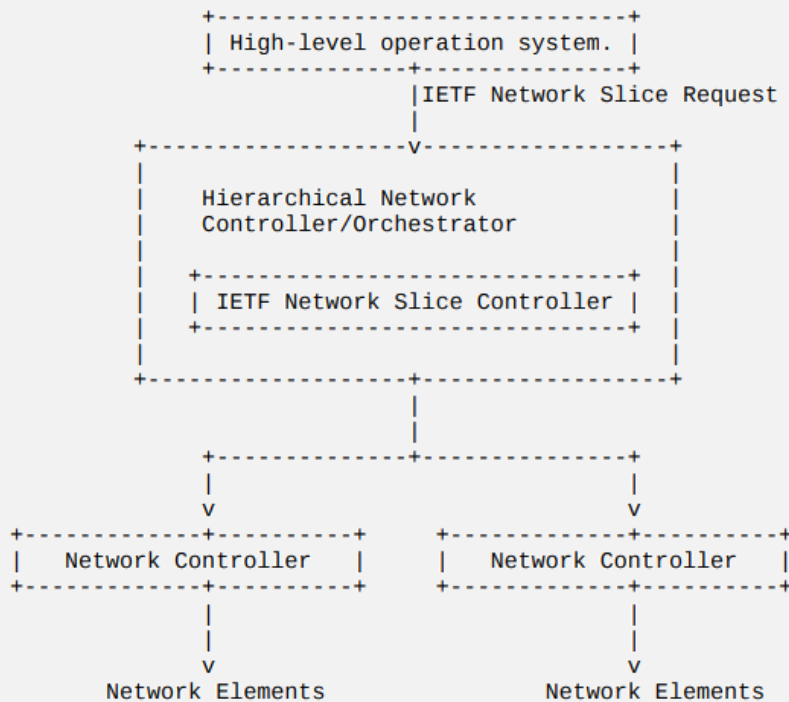
IETF#115, London, March 2022

Context (reminder)

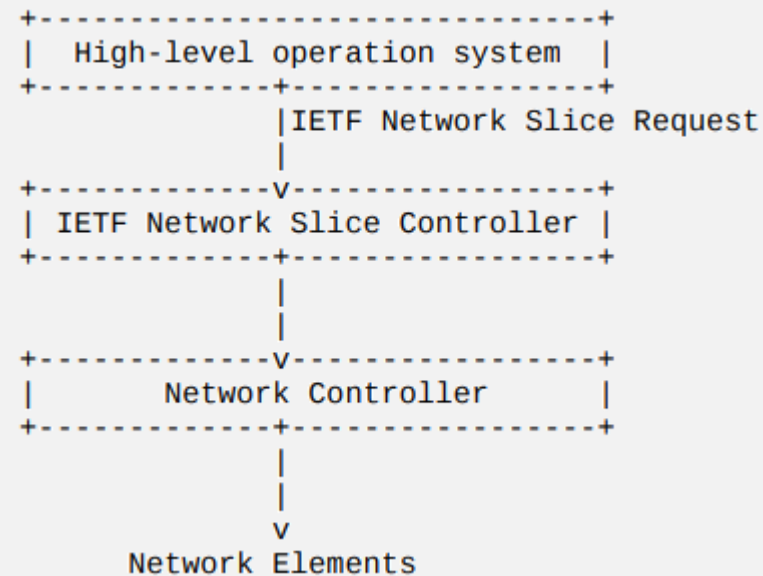
- IETF Network Slice Services:
 - Requirements: draft-ietf-teas-ietf-network-slices and draft-ietf-teas-ietf-network-slice-use-cases
 - Network Slice service framework: draft-ietf-teas-ietf-network-slices
 - Slice attributes and functionalities expected: draft-ietf-teas-ietf-network-slice-use-cases
- IETF Network Automation:
 - Service Models: Capture the customer requirements (i.e. LxSM, ...)
 - Network Models: Capture the Network requirements to deliver a service. (i.e. LxNM)
 - TE Models and Service Mapping: Maps the TE data models and the service/network models.
 - ACLs and Routing Policies
- Existing architectures and frameworks for Network Automation and SDN:
 - [RFC 8969] A Framework for Automating Service and Network Management with YANG
 - [RFC 8453] Framework for Abstraction and Control of TE Networks (ACTN)
 - [RFC 8309] Service Models Explained

Possible architectural options (reminder)

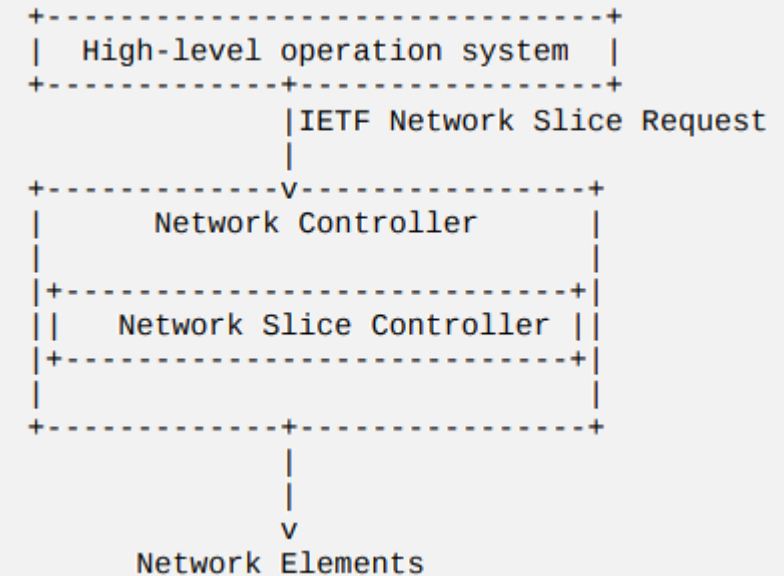
IETF NSC as a module of the Hierarchical SDN controller



IETF NSC as a stand-alone entity



IETF NSC as a module of the Network controller

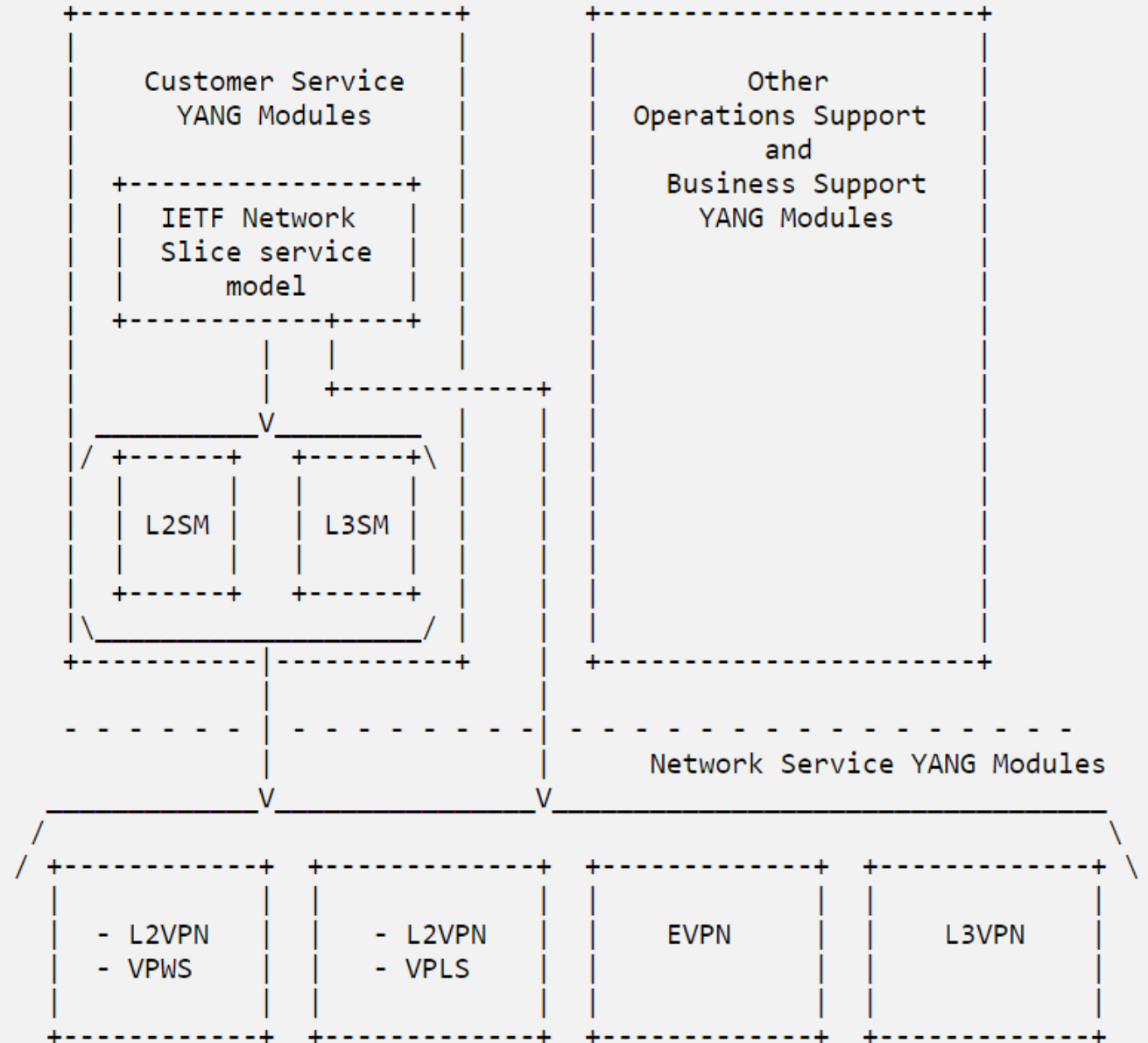


Updates from -03 version

- -04 (July 2022)
 - Correction of Fig.5 for better showing possible mapping of IETF NS NBI YANG model to either LxSM or LxNM
 - Addition of the description of the relationship between IETF NS NBI model parameters and L2SM ones
 - Moving from annex to the main body the relationship between IETF NS NBI model and LxSM models
 - Fixing of a lot of typos and update of references (from I-D to RFC)
- -05 (October 2022)
 - General alignment with terminology in framework document, update of references (from I-D to RFC) and text refinement

Relationship between models

- Based on RFC 8309 models relationship
- Realization of IETF NS service model could be mapped either to a Service model (e.g., L3SM) or directly to a Network model (e.g., L3NM)



Relationship between IETF NBI model parameters and LxSM model parameters

L3SM (RFC 8299)	L2SM (RFC 8466)	IETF NSC NBI YANG model
Bandwidth	Bandwidth (CIR, PIR)	Sum of bandwidth SLO per NSE counting all connections
MTU (later 3 service)	MTU (later 2 service)	MTU attribute in SLE
QoS - QoS classification policy - QoS profile - rate-limit - latency - jitter - bandwidth	QoS - QoS classification policy - QoS profile - rate-limit - latency - jitter - bandwidth	QoS Defined in the model as network-access-qos-policy-name to be applied per access-point Defined in the model as incoming/outgoing rate-limits per end-point (or access-point) One-way / Two-way latency SLO One-way / Two-way delay variation SLO One-way / Two-way bandwidth SLO
Multicast	Broadcast, Unknown, Unicast and Multicast (BUM)	The need of replication can be inferred from ns-connectivity-type. Further details are not available (e.g. source or receiver role)
	Availability as dual homing	Availability as the ratio of up-time to total_time(up-time+down-time)

Next Steps

- Version -06 will provide further updates
 - Review of the architectural models (clean up if needed)
 - Evaluation of a new architectural option where a service model is further mapped/realized to a IETF NS service (e.g., to an OTN slice)
- Relationship of parameters between IETF NS NBI YANG and LxNM
- Keep working on detailing the different implementation options and its operational considerations.
- Collect feedback / comments from the WG to enhance the document.
- Consider request of WG adoption to incorporate the WG view (targeting IETF 116)